Ocean in the tropics along the meridian of 151° 45′ W., a short distance to the eastward of the Hawaiian Islands. The surface densities in this section, and generally in the South Pacific, are higher than in the North Pacific; this is due mainly to the fact that no large rivers, draining extensive continental areas, empty their waters into the South Pacific. As a rule the densities decrease from the surface to the depth of about 300 fathoms, where densities from 1.0254 to 1.0257 are found; thence there is a very gradual increase to the bottom, where 1.0259 is reached. This depth of 300 fathoms indicates the approximate limit to which salt and heat are carried through the process of surface evaporation. But there is another cause which brings the waters of the ocean into motion and tends to diffuse salt and heat into regions which are not affected directly by evaporation. If two differently constituted bodies of seawater meet under the conditions of equilibrium, the one composed of dense and warm, the other of light and cold water, an effort towards equalization of the proportions of salt and heat at the plane of contact will develop a tendency in the denser water to sink and in the lighter water to rise to a higher level. The waters of the South Pacific, being denser and warmer in the upper stratum than those of the north Pacific, exhibit this tendency to sink in the vicinity of the equator, where with a density of 1.0259 to 1.0260 at a depth of 200 fathoms they descend to more than 1,000 fathoms' depth. At the same time the light water of the north Pacific rises from the depth of 800 fathoms in latitude 20° N. with a density of 1.0254 in an oblique direction towards the equator, arriving in latitude 3° N. with a density of 1.0258 at 50 fathoms from the surface. The effects of the sinking of the dense and the rising of the cold water are shown in the diagram of temperatures by the high temperatures between the equator and 10° N. latitude at all depths exceeding 150 fathoms and by the existence of a minimum of surface temperature at the equator itself. We note a second example of bodies of water changing their level in the upper left-hand part of the diagram, where dense and warm water from the region of the equatorial counter current undermines the north equatorial current and forces its light and cold water towards the surface. The diagram has the defect of showing motion in only two directions, vertical and meridional, while the third component, the most important one, that in an east-and-west direction is not represented and hitherto has not received our attention. The presence in the south Pacific of water at the depth of 100 fathoms with greater density than is found at the surface cannot be accounted for by mere sinking 'in loco,' but we have to assume that the surface water has drifted to its present position by a current from the eastward, while the lower water comes from a more southerly direction. Likewise, we find in latitude 9° 28′ N. the density of the surface water is 1.0250, and is nowhere less than 1.0256 under the surface; as we cannot admit that in a region where density decreases with depth water rising to the surface should have its density reduced, we must assume that the lightness of the surface water is either due to precipitation or to a current of light water, the north equatorial, and that the water of the density of 1.0256 may not reach the surface, or, if at all, then probably far to the westward of the position indicated on the diagram.

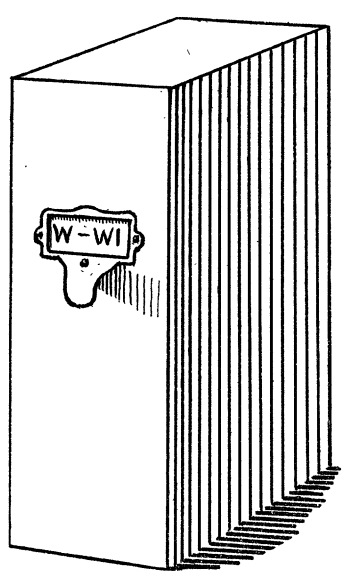
A. Lindenkohl.

THE STORING OF PAMPHLETS.

The question of the best method of keeping pamphlets in a private library has become a question of great practical importance to the scientific worker. Owing to the custom of exchanging reprints of arti-

cles, it has come about that the larger part of a working scientific library is very apt to consist of separate pamphlets, which soon run up into the thousands in number. Many expedients have been suggested for arranging these so as to keep them always in strict order and at the same time readily accessible. The use both of drawers put in a cabinet, and of various forms of boxes, has been proposed from time to time, and each of these suggested plans has had something to recommend it.

I have now been using for some time a form of box which seems to me, on the whole to combine a larger number of advantages for the preservation and ready accessibility of one's pamphlets. This box is made of thin wood, and measures inside 7x4 inches, and is 10½ inches in height. It is entirely



open at the back, and is covered with a cheap grade of marble paper. Pamphlet boxes of this form are furnished in quantity at low rates by the Library Bureau.* By simply adding to each of these a pull and label holder, as shown in the figure, we obtain a box which may be placed on a shelf of an ordinary book-case, and which may be easily pulled out from its position with one hand, leaving the other hand free to look over the pamphlets which it may contain. The label may be easily shifted in the holder, if the contents of the pamphlet-box are to be changed. These boxes may be arranged in rows upon a shelf, and then present a neat and orderly appearance, and whenever one box becomes too full another box may be interpolated in the series without difficulty.

As regards my own system, I arrange the boxes in two sets. In one of these sets the pamphlets are arranged alphabetically according to the author, and in this series I include all such publications as refer to my special line of study. In a second set each box is devoted to a special subject, and here are placed pamphlets which I have less frequent occasion to refer to. I find it also very convenient to keep journals and magazines in these boxes, a separate box for each magazine. These serials are then kept in good order, are protected from dust and are readily accessible.

In conclusion, I will only say that, after having experimented with many systems, I have found this the most simple, convenient and economical, and, therefore, on the whole, the most satisfactory of any which I have tried.

CHARLES S. MINOT.

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NOTES ON INORGANIC CHEMISTRY.

THAT there is a decided resemblance between the compounds of oxygen and halogen salts with ammonia, and the compounds of these same salts with water was long ago pointed out by Professor H. Rose. This fact is further developed by Mendeleef in his 'Grundlagen der Chemie,' and attention is there called to the fact that many of these salts give up a part or the whole of their ammonia in a very similar way to that